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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,289	04/05/2005	Tatsuya Igarashi	0649-1070PUS1	7753

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PO BOX 747  
FALLS CHURCH, VA 22040-0747

EXAMINER
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GARRETT, DAWN L

ART UNIT	PAPER NUMBER
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1794

NOTIFICATION DATE	DELIVERY MODE
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09/18/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/530,289	<b>Applicant(s)</b> IGARASHI ET AL.	
	<b>Examiner</b> Dawn Garrett	<b>Art Unit</b> 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 June 2009 and 13 August 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,4-22 and 24-29 is/are pending in the application.
- 4a) Of the above claim(s) 13-16 and 18-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4-12, 17, 22 and 24-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/23/2009, 8/13/2009</u> .                                    | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 10, 2009 and August 13, 2009 has been entered.
2. The claim amendment received August 13, 2009 has been entered. Claims 1 and 5 were amended. Claims 2, 3, and 23 are canceled. Claims 13-16 and 18-21 are withdrawn as non-elected. In the claim amendment filed June 10, 2009, claims 25-29 were newly added. Applicant previously elected a pyrrole compound as the hole injection/transport compound species and a five-membered nitrogen-containing heterocyclic compound as the electron injection/transport compound species.
3. The rejection of claim 23 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention set forth in the last Office action (mailed February 10, 2009) is withdrawn due to the cancellation of claim 23.

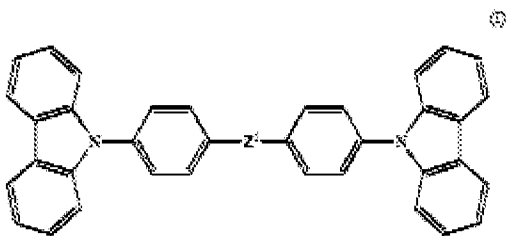
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***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 4-10, 12, 17, 22, and 24-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al. (US 2002/0125818 A1). Sato et al. discloses organic electroluminescent devices comprising, between an anode and a cathode, a light emitting layer comprising a host material having an electron-transporting or hole-transporting property and a compound capable of phosphorescence (see abstract). Suitable host compounds include those according to general formula I (see par. 52) (per claims 6-8):

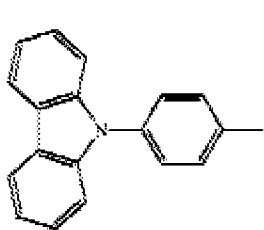


Z1 in above general formula I may be a divalent group including the following group among others (see par. 63, page 5):



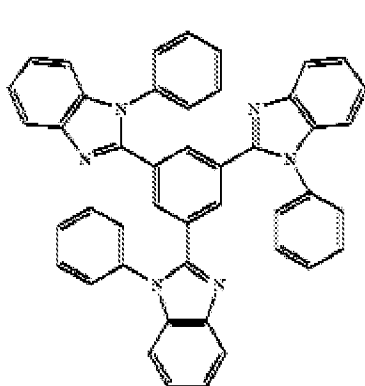
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Ar1 in the above formula may include the following group among others (see par. 64):



The above Z1 and Ar1 groups result in the same compound as "C-12" (see instant disclosure at page 58) described in the instant specification as having a T1 value of 62 Kcal/mol (see instant disclosure at page 81, example 7).

Other host material includes electron transporting compounds such as TPBI per claims 9, 10 and 12 (see page 30, top of second column):



Sato et al. does not specifically describe the ionization potential of TPBI, but as a preferred material used by applicant, it is assumed the compound meets the claimed property requirement. [Recitation of a newly disclosed property does not distinguish over a reference disclosure of the article or composition claims. *General Electric v. Jewe Incandescent Lamp Co.*, 67 USPQ 155. *Titanium Metal Corp. v. Banner*, 227 USPQ 773. Applicant bears responsibility for proving that

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reference composition does not possess the characteristics recited in the claims. *In re Fitzgerald*, 205 USPQ 597, *In re Best*, 195 USPQ 430.]

Sato et al. discloses a plurality of host materials may be used together (see page 30, par. 128). Phosphorescent dopant may include iridium compounds such as Ir(ppy)<sub>3</sub> (see par. 134-150), which is a green-emitting compound per claim 24, as well as other iridium compounds according to the general formulas (see par. 134-150) for the specific ligands per claims 27-29. A difluorophenylpyridine ligand is shown on page 39, paragraph 150 per claim 29. The carbazole derivative (general formula I above), TPBI and iridium metal complexes all appear to be within the parameters of those claimed by applicant and are used in the instant examples. Accordingly, the compounds are considered to satisfy the properties set forth in the claims as they read upon the compounds disclosed by applicant. Although Sato et al. is silent with respect to *examples* showing a hole-transporting host and electron-transporting host used in combination, it would have been obvious to one of ordinary skill in the art at the time of the invention to have formed a luminescent layer comprising a mixture of host materials and a phosphorescent dopant, because Sato et al. clearly teaches a plurality of host materials may be used together. With regard to claim 22, Sato et al. clearly teaches devices comprising organic material including an electron transport layer and hole transport layer (see par. 167). It is noted that claim 22 does not require any particular properties for “an electron injection/transport compound and a hole injection/transport compound” in claim 22 or that they are the same as in claim 1. Sato et al. further describes the formation of polychromatic displays (see par. 30, 36) and recognizes a display device may be formed from sub-pixels (see par. 24); additionally, the devices taught by Sato et al. (see figures) are multi-layered.

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Applicant claims a combination that only unites old elements with no change in the respective functions of those old elements, and the combination of those elements yields predictable results; absent evidence that the modifications necessary to effect the combination of elements is uniquely challenging or difficult for one of ordinary skill in the art, the claim is unpatentable as obvious under 35 U.S.C. 103(a). *Ex Parte Smith*, 83 USPQ.2d at 1518-19 (BPAI, 2007) (citing *KSR*, 127 S.Ct. at 1740, 82 USPQ2d at 1396). Accordingly, since the applicant has submitted no persuasive evidence that the combination of the above elements is uniquely challenging or difficult for one of ordinary skill in the art, the claim is unpatentable as obvious under 35 U.S.C. 103(a) because it is no more than the predictable use of prior art elements according to their established functions resulting in the simple substitution of one known element for another or the mere application of a known technique to a piece of prior art ready for improvement.

6. Claims 11 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al. (US 2002/0125818 A1) in view of Ise et al. (US 6,962,755). Sato et al. is relied upon as set forth above. Sato et al. discloses organic electroluminescent devices comprising, between an anode and a cathode, a light emitting layer comprising a host material having an electron-transporting or hole-transporting property and a compound capable of phosphorescence (see abstract). Also, Sato et al. discloses a plurality of host materials may be used together (see page 30, par. 128). Sato et al. is silent with respect to specifically disclosing an electron-transporting host according to the formula set forth in claim 11, but does teach other azoles such as TPBI. Ise et al. teaches in analogous art compounds according to formula A-III (see col. 13) and more

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specifically compounds such as A-19 (see Table 1) as electron transporting material for an EL device. It would have been obvious to one of ordinary skill in the art to have selected the azole compounds taught by Ise et al. for the Sato et al. host material, because one would expect the Ise et al. electron transporting azole compounds to be similarly useful as an electron transporting material in the Sato et al. device.

Ise et al. does not specifically describe the ionization potential of the azole compounds, but as a preferred materials used by applicant, it is assumed the compounds meet the claimed property requirement. [Recitation of a newly disclosed property does not distinguish over a reference disclosure of the article or composition claims. *General Electric v. Jewe Incandescent Lamp Co.*, 67 USPQ 155. *Titanium Metal Corp. v. Banner*, 227 USPQ 773. Applicant bears responsibility for proving that reference composition does not possess the characteristics recited in the claims. *In re Fitzgerald*, 205 USPQ 597, *In re Best*, 195 USPQ 430.]

### ***Response to Arguments***

7. Applicant's arguments filed June 10, 2009 and August 13, 2009 have been fully considered but they are not persuasive.

Applicant argues Sato '818 does not disclose an embodiment where two kinds of host materials are a combination of a hole-transporting material with an electron-transporting material. Sato clearly teaches more than one host material may be used. The examiner notes that "[A] reference disclosure must be evaluated for all that it fairly [teaches] and not only for what is indicated as preferred." *In re Bozek*, 416 F.2d 1385, 1390 (CCPA 1969).

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Applicant alleges unexpected effects of improvement in external quantum efficiency and operation durability. The Declarations under 37 CFR 1.132 filed on August 13, 2009 and June 10, 2009 are insufficient to overcome the rejection of the claims based upon Sato et al. as set forth in the last Office action because:

In the declaration filed August 13, 2009 "Additional Example 1" and "Additional Example 2" are the only examples alleged to meet the condition for T1. The examiner respectfully submits these "inventive" examples are not within the scope of independent claim 1 requiring that each of the electron injection/transport compound, the hole injection/transport compound and the green or blue phosphorescent compound each has a T1 value of 62 kcal/mole or more. The examiner notes that each of Additional Examples 1 and 2 comprise CBP, TPBI and Ir(ppy)<sub>3</sub> in the light emitting layer. According to the instant disclosure, CBP has a T1 value of 60 kcal/mole (see page 81) and therefore is not within the range claimed by applicant in independent claim 1. Accordingly, the additional examples are not sufficient to establish unexpectedly good results that are fully commensurate with the claim limitations and breadth of the claimed subject matter.

### ***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dawn Garrett whose telephone number is (571) 272-1523. The examiner can normally be reached Monday-Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, D. Lawrence Tarazano can be reached on (571) 272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dawn Garrett/  
Primary Examiner, Art Unit 1794

September 14, 2009